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Amendments to the Claims:

Claims 1-14 (Canceled).

15. (Original) An isolated proteon nucleation center (PNC) comprising a metal cluster.

16. (Original) A process for the purification of the PNC of claim 15 from a biological sample, comprising:

- a) centrifuging said biological sample until a supernatant is formed;
- b) filtering said supernatant through a 5,000 kD nominal molecular weight limit ultrafiltration membrane; and
- c) collecting the filtrate.

17. (Original) A PNC product produced by the process of claim 16.

18. (Original) The isolated PNC of claim 15, wherein said metal cluster is selected from the group consisting of copper, iron, magnesium, and zinc.

19. (Original) A method for inducing apoptosis in cells, comprising contacting a cell culture with at least one isolated PNC of claim 15.

20. (Original) A method for clearing misfolded proteins from blood comprising contacting a sample of blood with the PNC of claim 15.

21. (New) A method for the cyclic amplification of proteons in a biological sample comprising the steps of:

- a) placing an aliquot of a sample comprising a proteon nucleation center (PNC) comprising a metal cluster in an unheated subsample;

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b) heating the subsample; and  
c) repeating steps (a) and (b) with aliquots taken from the most recently heated subsample for 1 or more cycles.

22. (New) The method of claim 21, wherein steps (a) through (c) are repeated until the number of proteons obtained in each heated subsample no longer increases, wherein the number of proteons in the subsample in which the number of proteons no longer increases is indicative of the amount of misfolded proteins present in the biological sample.

23. (New) The method of claim 21, wherein the subsamples are each 1 ml and the aliquot is 5  $\mu$ l.

24. (New) The method of claim 21, wherein a heating time is selected from the group consisting of 1, 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, 70, 75, 80, 85, 90, 95, 100, 105, 110, 115, and 120 minutes.

25. (New) The method of claim 21, wherein a heating temperature is selected from the group consisting of 37, 40, 45, 50, 55, 60, 65, 70, 75, 80, 85, 90, 95, 100, 105, 110, 115, and 120°C.

26. (New) The method of claim 21, wherein the number of cycles is selected from the group consisting of 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 15, 20, and 25 cycles.

27. (New) The method of claim 21, wherein a heating pressure is selected from the group consisting of 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, and 25 psi.

28. (New) The method of claim 21, wherein a heating pressure is ambient pressure.

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29. (New) The method of claim 21, wherein the number of cycles is 6, each of said cycles comprising a heating time of 15 minutes at a heating temperature of 60°C.

30. (New) A method for the detection of a disorder comprising the steps of:

- a) centrifuging a biological sample until a supernatant is formed;
- b) dividing said supernatant into a plurality of subsamples;
- c) heating a subsample ;
- d) obtaining an aliquot of said heated subsample;
- e) placing said aliquot into an unheated subsample;
- f) heating the subsample of (e); and
- g) repeating steps d-f with aliquots taken from the most recently heated subsample for 1 or more cycles;

further wherein proteons are produced, and wherein said proteons produced from a most recently heated subsample are further contacted with an antibody that binds to a protein selected from the group consisting of hemoglobin, prion protein,  $\beta$ -amyloid,  $\alpha$ -synuclein, tau protein, serpins, neuroserpin, glutamate repeats, amylin, SOD, ApoB CFTR protein, immunoglobulin, amyloid light chain, serum amyloid A, transthyretin,  $\beta$ 2-microglobulin, apolipoprotein A-1, cystatin C, lysozyme, prion protein fragments, beta protein fragment 1-40/43, immunoglobulin light chain or fragments thereof, serum amyloid A 78 residue fragment, transthyretin fragments, apolipoprotein A-1 fragments, cystatin A minus 10 residues, gelsolin 71 residue, islet amyloid polypeptide fragment, insulin, calcitonin fragments, atrial natriuretic factor, lysozyme and fragments thereof, and fibrinogen fragments.

31. (New) The method of claim 30, wherein the binding of said antibody is indicative of a disorder selected from the group consisting of sickle cell anemia, the presence of Heinz bodies, inclusion body hemolysis, drug-induced inclusion body hemolysis, cancer, atherosclerosis, malaria, infections, auto-immune disorders, toxic reactions, internal bleeding, Creutzfeld-Jacob disease (CJD), new variant CJD, bovine spongiform encephalopathy (BSE), Gerstmann-Straussler-Schheinker disease, fatal familial insomnia, kuru, Alzheimer's disease,

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Down's syndrome, familial Alzheimer's disease, Parkinson's disease, the presence of Lewy bodies, frontotemporal dementia, the presence of Pick bodies,  $\alpha$ 1-antitrypsin deficiency, cirrhosis, emphysema, antithrombin deficiency, thrombosis, C1-inhibitor deficiency, angioedema, neurodegenerative disease, the presence of Collins bodies, inherited neurodegenerative disorders, Huntington's disease, diabetes type II, amyotrophic lateral sclerosis, atherosclerosis, cystic fibrosis, systemic amyloid light chain amyloidosis, nodular amyloidosis, reactive systemic amyloid A amyloidosis, chronic inflammatory disease, senile systemic amyloidosis, familial amyloid neuropathy, familial cardiac amyloidosis, hemodialysis amyloidosis, the presence of prostatic amyloid, familial amyloid polyneuropathy, familial visceral amyloidosis, hereditary (Icelandic) cerebral angiopathy, familial visceral amyloidosis, spongiform encephalopathies, primary systematic amyloidosis, secondary systematic amyloidosis, familial amyloid polyneuropathy I, familial amyloid polyneuropathy III, cerebral amyloid angiopathy, Finnish hereditary systemic amyloidosis, injection-localized amyloidosis, medullary thyroid carcinoma, atrial amyloidosis, non-neuropathic systemic amyloidosis, and hereditary renal amyloidosis.

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